DOCUMENT RESUME

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TITLE	Newton. MicroSIFT Courseware Evaluation.
INSTITUTION	Northwest Regional Educational Lab., Portland, Oreg.
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DESCRIPTORS	*Computer Assisted Instruction; *Computer Programs; *Gravity (Physics); Microcomputers; *Motion; Physics; Postsecondary Education; *Science Instruction; Secondary Education; Simulation
IDENTIFIERS	Apple II; Apple II Plus; Courseware Evaluation; Microcomputer Software and Info for Teachers; Newton Laws of Motion; PF Project; Software Evaluation; *Software Reviews

ABSTRACT

THE FOLLOWING IS THE FULL TEXT OF THIS DOCUMENT (Except for the Evaluation Summary Table): VERSION: Member's Apple Demonstration Kit. PRODUCER: Conduit, P.O. Box 388, Iowa City, Iowa 52244. EVALUATION COMPLETED: June 1982 by the staff and constituents of the Portland Public Schools, Multnomah ESD, Portland, Oregon. COST: $35.00. ABILITY LEVEL: Grades 11-12, post-secondary. SUBJECT: Physics. MEDIUM OF TRANSFER: 5-1/4" flexible disk. REQUIRED HARDWARE: 48K Apple II or Apple II+, single disk drive, monitor or television. REQUIRED SOFTWARE: Applesoft, DOS 3.3. INSTRUCTIONAL PURPOSE: Enrichment. INSTRUCTIONAL TECHNIQUES: Simulation. DOCUMENTATION AVAILABLE: The computer program contains program operating instructions and student instructions. Supplementary materials include the following: instructional objectives, prerequisite skills or activities, teacher's information, resource/reference information, student instructions, followup activities and information about the relationship of the material to standard textbooks. Field test data are available from producers on request. INSTRUCTIONAL OBJECTIVES (Stated): 1. Extending students' knowledge of projectile motion from the simplest case (a 'flat Earth' and constant gravitational force), to the more general (round Earth, force varying with distance); 2. An appreciation of how the application of Newton's Second Law, and his Law of Gravitation leads to prediction of satellite orbits; 3. Knowledge of the possible shapes of orbits, 4. Some idea of the periodic time of orbits, and of the effect on the orbit of varying launch velocity; 5. The application of a familiar idea (conservation of energy) in a new situation. INSTRUCTIONAL PREREQUISITES: Prerequisites are stated as basic familiarity with Newton's laws of motion and gravitation. CONTENT AND STRUCTURE: "Newton" is one of a series of units in physics developed by Conduit. The package is a simulation illustrating Newton's laws of motion, and it is designed to be integrated into existing courses. The package consists of a diskette, student materials and a teacher's guide. Student materials lead students to an approximation of the horizontal velocity needed to keep a body in orbit. The computer program challenges the student to determine the initial velocity required to keep an object in orbit. The program displays the projectile in orbit around Earth and a table of accompanying data. Teacher's materials provide ideas and references for extending and modifying the program. ESTIMATED STUDENT TIME REQUIRED: Two to three fifty-minute periods. POTENTIAL USES: Evaluators indicate that this package is appropriate for use in a high school or college physics class to demonstrate (simulate) the trajectory required to put an object into orbit. MAJOR STRENGTHS: Numeric description accompanies graphic representation of the height and shape of each orbit; and student materials contain illustrations and questioning strategies which are involving and lead the student into the use of the computer program. MAJOR WEAKNESSES: The plotting of the trajectory is extremely slow. The program could be improved by allowing it to run longer. It was felt that the program stops too frequently. EVALUATION SUMMARY: Evaluators indicate they would use or recommend use of this package with little or no change. (Author)

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Newton

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EVALUATION SUMMARY

SA	A	D	SD	NA	
•					Content is accurate.
•					Content has educational value.
•					Content is free of stereotypes.
	•				Purpose of package is well defined.
	•				Package achieves defined purpose.
	•				Content presentation is clear and logical.
	•				Difficulty level is appropriate to audience.
	•				Graphics/sound/color are used appropriately.
	•				Use of package is motivational.
		•			Student creativity is effectively stimulated.
		•			Feedback is effectively employed.

SA	A	D	SD	NA	
		•			Learner controls rate and sequence.
•					Instruction integrates with prior learning.
	•				Learning can be generalized.
	•				User support materials are comprehensive.
•					User support materials are effective.
		•			Information displays are effective.
	•				Users can operate easily and independently.
	•				Teachers can employ package easily.
	•				Computer capabilities are used appropriately.
	•				Program is reliable in normal use.

SA - Strongly Agree A-Agree D-Disagree SD - Strongly Disagree NA - Not Applicable

Evaluators indicate they would use or recommend use of this package with little or no change.

IR 020 029

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This evaluation is based on the evaluations of three or more reviewers who are representative of potential users of the courseware package.

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